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From the Editor

Readers of "Hong Kong Biodiversity" might be wondering why it has taken us so long to publish this issue. The reason lies in BSAP. You are probably aware that the Government launched Hong Kong's first Biodiversity Strategy and Action Plan (BSAP) in December 2016, setting the scene for conservation of biodiversity in the coming five years. While we have continued to collect ecological data and keep up with the changes related to species, especially in taxonomy and status, the team is also heavily engaged in compiling, coordinating and implementing the actions laid down in the BSAP.

One key action area of the BSAP is improving our knowledge on local biodiversity. This area covers initiatives from generating new information and consolidating existing data, to collaborating with partners and improving information-sharing. We will commission relevant studies on priority topics and also support research projects through relevant funding sources. To this end, we will develop a web-based information hub to provide biodiversity information in a more user-friendly manner. In the meantime, we will continue to publish the results of our surveys, studies and any findings that might be of interest to the wider conservation community, through "Hong Kong Biodiversity". The BSAP marks a new page in the mainstreaming of biodiversity in Hong Kong. We need your continued support to keep up this momentum.

Jackie YIP

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Feature Article

Potamidid Snails in Hong Kong Mangroves

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Wetland Specialist Working Group

踏進紅樹林，其中一類最常見的生物必然是那些遍佈泥灘及紅樹上、形態相似的滙螺（台灣稱海蜷螺）。最新的分類研究指出本港有 12 種滙螺。本文旨在重整本港有關滙螺的紀錄及描述其特徵，方便研究人員辨別這群容易混淆的生物。

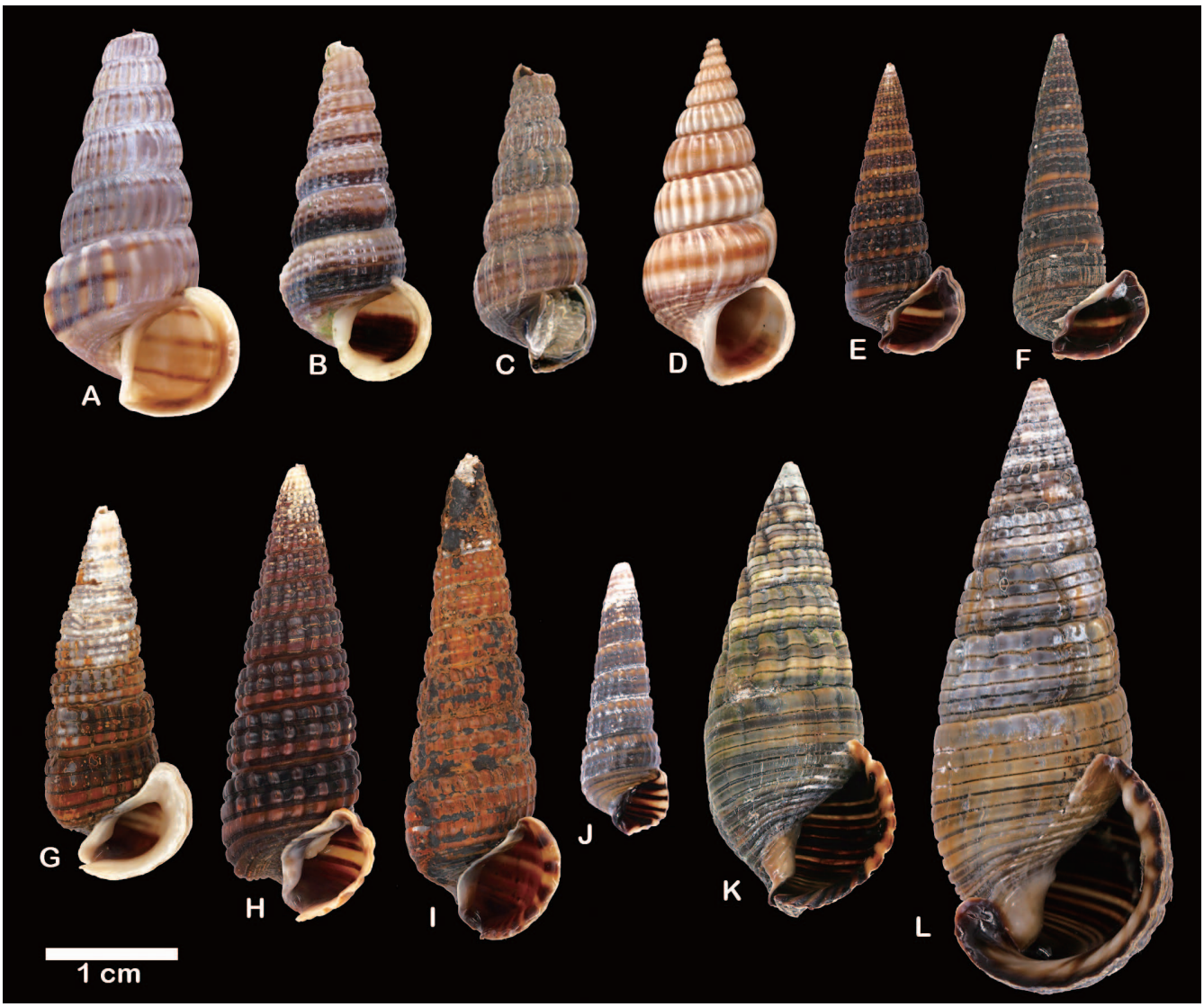
Introduction

For marine organisms, mangroves are a physically challenging habitat, characterized by acidic and anoxic soil, a three-dimensional structure of mangrove stands, and fluctuating salinity resulting from intermittent tidal inundation, evaporation in the tropical sun and heavy rainfall. Yet, in such a harsh environment across the central Indo-West Pacific region including Hong Kong, there lives a suite of small and often extremely abundant snails from the family Potamididae (Fig. 1). Most of the potamidid snails recorded in Hong Kong were initially thought to belong to the genus *Cerithidea*, but recent studies have assigned some of the a priori *Cerithidea* spp. to the genus *Pirenella*, as well as unraveled a few cryptic species (Table 1). Along with another newly documented species, *Cerithideopsis largillierti* (Reid 2014), and the two previously recorded species from the genus *Terebralia*, there are 12 hitherto recorded potamidid species belonging to four genera in Hong Kong (Fig. 2). It should also be noted that the *Batillaria* spp., which were once assigned as members of the family Potamididae, have been transferred to the family Batillaridae (Ozawa et al. 2009). This article presents keys to aid in the identification of these highly similar potamidid snails living in local mangrove stands, together with an up-to-date checklist.

Fig. 1. Potamidid snails on mudflat (left) and tree trunk (right) in Ting Kok mangrove.

Table 1. Revisions on the genus *Cerithidea*.	
Invalid names/ misidentifications (Tam & Wong 1997; Yang 2007)	Revised names/ cryptic species/ new record (Reid 2014; Reid & Ozawa 2016)
Cerithidea alata	*Pirenella alata*
	Pirenella nanhaiensis
Cerithidea cingulata	*Pirenella asiatica*
Cerithidea djadjariensis	*Pirenella incisa*
	Pirenella pupiformis
Cerithidea microptera	*Pirenella microptera*
Cerithidea ornata	*Cerithidea tonkiniana*
Cerithidea rhizophorarum	*Cerithidea moerchii*
	Cerithidea sinensis (new record)

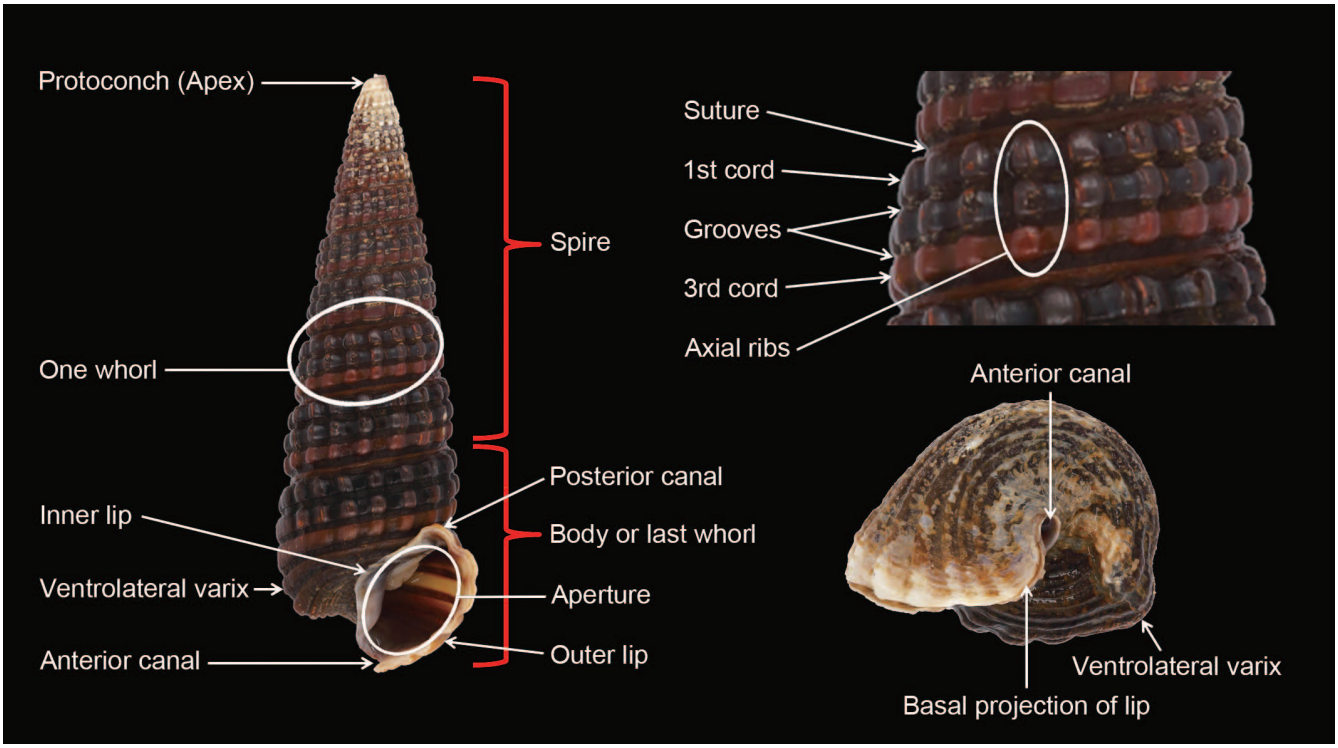
Fig. 2. Specimens of potamidid snails (apertural view). A) *Cerithidea tonkiniana*. B) *C. moerchii*. C) *C. sinensis*. D) *Cerithideopsis largillierti* (Reid & Claremont 2014, Fig. 2B). E) *Pirenella alata*. F) *P. microptera*. G) *P. nanhaiensis*. H) *P. incisa*. I) *P. pupiformis*. J) *P. asiatica*. K) *Terebralia palustris*. L) *T. sulcata*.



Basic morphological terminology

Potamidid snails have a typical spirally coiled shell (Fig. 3) akin to many other gastropods. Knowing the terminology used to describe the shell is a pivotal step in identification of potamidid snails. The **protoconch** (or **apex**) is the oldest or earliest part of the shell, which was the shell of a snail at its juvenile stage. As the snail continues to grow, its shell grows larger in a spiral fashion, forming a series of coils named **whorls**. The whorls overlap one another and the seam between whorls is termed the **suture**. All the whorls of the shell above the **body whorl** (i.e. the last and the largest coil) are collectively called a **spire**. **Aperture** is the opening of the shell at the body whorl from which the snail's soft body emerges, and the left and right side of the aperture are known as the **inner** and **outer lip** respectively. Often the aperture may have openings at the anterior and/or posterior end forming a canal. Any linear spiral indentations on the surface of the shell can be referred to as **grooves**. The grooves separate the whorls into segments called **cords**. Sometimes the shell may also have raised, transverse ridges on the surface, which are termed the **ribs**. The **varix**, a thickened axial ridge is another important shell character in classification of potamidid snails. Varices are formed by considerable thickening of the outer lip during a resting stage in the growth of the shell.

Fig. 3. Illustration of key morphological features of a potamidid (*Pirenella incisa*) shell.



Descriptions of potamidids in Hong Kong

Cerithidea Swainson, 1840

Three *Cerithidea* species are recorded in Hong Kong mangroves. They are characterized generally by having a worn off apex (Fig. 2), with about seven preserved spire whorls. A comparison of major morphological features of the three species is presented in Table 2.

Cerithidea tonkiniana Mabille, 1887

This species was previously described as '*C. ornata*' (e.g. Tam & Wong 1997; Yang 2007), a species complex which has recently been found to encompass two superficially similar species, *C. balteata* (distributed from the Philippines down to the Solomon Islands and not found in Hong Kong) and *C. tonkiniana* (distributed from Southern Japan down to Vietnam, Reid et al. 2013; Reid 2014). It inhabits the landward edge (upper tidal levels) of mangroves, and attaches on mangrove trunks and branches by mucus during low tide.

Cerithidea moerchii (Adams, 1855)

This species had been wrongly identified as *C. rhizophorarum* (a species endemic to the Philippines) for more than a century, and only until recently been given its valid name (Reid 2014). It usually occurs on trunks and branches of mangrove plants, like *C. tonkiniana*, as well as on mudflat and boulders, and among seashore herbaceous plants (e.g. *Sesuvium portulacastrum*) near the mangroves.

Cerithidea sinensis (Philippi, 1848)

This species was once thought to occur only in northern China and Japan (Ma 2004) but later reported in Hong Kong by Reid (2014) based on a specimen collected in 1940. Our recent surveys have also reaffirmed the presence of this species in Hong Kong. Given its rarity and similarity to *C. tonkiniana*, the species can be easily overlooked in the field. Our field records indicate that the species, unlike the other two *Cerithidea* spp., usually occurs on mudflats rather than on branches or trunks of mangrove plants.

Table 2. Morphological comparison of the three species in the genus *Cerithidea*.

	C. tonkiniana	*C. moerchii*	*C. sinensis*
Shell height	Up to 4 cm	Up to 5 cm	Up to 3 cm
Aperture	Thickened and flared	Thickened and flared	Slightly thickened and flared
Features of spire whorls	Prominent axial ribs; no distinctive grooves or cords (Fig. 4); 5 weak spiral ridges (usually eroded)	Prominent axial ribs; five distinctive cords (Fig. 4)	Prominent axial ribs; no distinctive grooves, cords or spiral ridges
Ventrolateral varix	Prominent as an enlarged rib (Figs. 4 & 5)	Prominent as a white, enlarged rib (Fig. 4)	Usually absent (Fig. 5)
Shell colour	Pale brown to pale white with dark purple-brown bands	White to pale brown with dark brown bands	Pale yellow to brown, with about two brown bands

***Cerithideopsis* Thiele, 1929**

Cerithideopsis largillierti (Philippi, 1848)

This species was found throughout the coast of China by Ma (2004), but has only recently been reported in Hong Kong at Tsim Bei Tsui (Reid & Claremont 2014). It might have been misidentified as '*Cerithidea ornata*' (i.e. *Cerithidea tonkiniana*) previously due to their highly similar morphological features. The species inhabits a range of habitats including mudflats at high tidal levels, river mouths, among saltmarsh vegetation and at margins of brackish shrimp ponds (Reid & Claremont 2014).

Shell morphology: Up to 4 cm in height and is similar to the shell of *Cerithidea tonkiniana* and *Cerithidea sinenis*, with no distinctive grooves or cords on its whorls. It usually has a well-preserved apex and 9-11 whorls. Shell is pale brown with two darker brown bands (Reid & Claremont 2014).

***Pirenella* Gray, 1847**

This genus was once termed "*Cerithideopsilla*" (Reid & Ozawa 2016). A total of six *Pirenella* spp. have been recorded in Hong Kong. All of them have three distinctive cords, two grooves and prominent axial ribs on spire whorls (Fig. 2). Based on common features, Reid & Ozawa (2016) further categorised *Pirenella* spp. into three major morphological groups, namely, '*P. alata*', '*P. incisa*' and '*P. cingulata*'.

***'P. alata'* group**

Species in this group have a well-developed posterior canal detached from the body, forming a wing-like structure, and a strong basal projection of outer lip from the aperture, which forms an acute angle and covers the deep anterior canal from basal view (Fig. 7). Three species in this group have been recorded in Hong Kong, and a comparison of their major morphological features is presented in Table 3.

Pirenella alata (Philippi, 1849)

The species was earlier documented as *Cerithidea alata* (Yang 2007), and is usually found on upper shore under mangrove plants at low densities.

Pirenella microptera (Kiener, 1841)

A few earlier studies have reported this species along the coast of China including Hong Kong (Tam & Wong 1997; Ma 2004; Zhang & Li 2008). According to our surveys, the species seems to be rare in Hong Kong, and is usually found on upper shore under mangrove plants (Zhang & Li 2008; Reid & Ozawa, 2016).

Pirenella nanhaiensis Fu & Reid, 2016

This is a cryptic species which was first described by Reid & Ozawa (2016) based on molecular evidence from Ozawa et al. (2015). It can be found on mudflats adjacent to and within mangroves, and is rarer than *P. alata*.

Table 3. Morphological comparison of the three species in the *'P. alata'* group.

	P. alata	*P. microptera*	*P. nanhaiensis*
Shell height	Up to 4 cm	Up to 5 cm	Up to 3 cm
Shape	Narrow	Narrow	Wide
Aperture	'Wing' strongly detached, usually more than 50° from axis; outer lip moderately thickened and flared	'Wing' strongly detached, usually less than 50° from axis; outer lip moderately thickened and flared (Fig. 7)	'Wing' slightly detached, short and round; outer lip strongly thickened and flared (Fig. 8)
Features of spire whorls	3rd cord slightly wider than 1st and 2nd cords; two grooves subequal (Fig. 9)	3rd cord slightly wider than 1st and 2nd cords; 1st groove about half as wide as 2nd groove (Fig. 9); axial ribs obsolete on 2nd and 3rd cords in some specimens	1st cord slightly wider than 2nd and 3rd cords; two grooves subequal (Fig. 8)
Ventrolateral varix	Prominent; moderately angled at base	Weak to prominent; moderately angled at base	Prominent; moderately angled at base
Shell colour	Dark brown but the 3rd cord of each whorl is usually paler	Dark brown but the 3rd cord of each whorl is usually paler	Dark brown but the 3rd cord of each whorl is usually paler

'P. incisa' group

This group is characterized by the presence of three to five strong spiral striae in the two grooves on their spire whorls (Fig. 10). Species in this group were previously described under an invalid name '*Cerithidea djadjariensis*' which refers to a Pliocene fossil of *P. alata* (Reid & Ozawa 2016). Molecular evidence from Ozawa et al. (2015), however, showed that '*C. djadjariensis*' was actually a complex of three species. These three species forms the '*P. incisa*' group, and two of them occur in Hong Kong.

Pirenella incisa (Hombron & Jacquinot, 1848) and *Pirenella pupiformis* Ozawa & Reid, 2016

These species are superficially similar to each other, and an array of morphological features has to be examined holistically in order to distinguish the two species (Table 4). They are also sympatric on mudflats adjacent to and under mangrove trees, but *P. pupiformis* is relatively more abundant than *P. incisa* in general.

Table 4. Morphological comparison of the two species in the *'P. incisa'* group.

	P. incisa	*P. pupiformis*
Shell height	Up to 5 cm	Up to 5 cm
Anterior canal	Deep	Wide
Aperture	Moderate to weak basal projection of lip (about 90°), covering the anterior canal (Fig. 11)	Weak basal projection of lip (about 120°), not covering the anterior canal (Fig. 11)
Features of spire whorls	Three cords equal in width (Fig. 10)	1st cord slightly wider than 2nd and 3rd cords
Ventrolateral varix	Prominent (Fig. 11); moderately to strongly angled at base (Fig. 13)	Weak (Fig. 11); round at base (Fig. 13)
Shell colour	Dark brown but 3rd cord of each whorl is usually slightly paler	Dark brown but 3rd cord of each whorl is usually slightly paler

'P. cingulata' group

Species without the detached posterior canal (i.e. the 'wing' structure) and the strong spiral striae in the grooves are collectively assigned to the '*P. cingulata*' group.

Pirenella asiatica Ozawa & Reid, 2016

P. asiatica is a new species described by Ozawa & Reid (2016), which was previously misidentified as *Cerithidea cingulata* (a similar species which is actually distributed from India to Southeast Asia). It is the only species in this group recorded in Hong Kong, and is usually abundant on mudflats in front of mangrove plants at the seaward side of mangroves.

Shell morphology: up to 3 cm in height. It has a distinctive pattern of cords: 1st cord is the widest and 2nd cord is the narrowest (about half as wide as 1st cord). The two grooves are equal in width, with no spiral stria (Fig. 10). Shell is generally orange brown to grey, and 1st cord is usually paler, which make it easily distinguished from other *Pirenella* spp. in Hong Kong.

Terebralia Swainson, 1840

Terebralia palustris (Linnaeus, 1767)

This species has often been overlooked in Hong Kong as it is morphologically similar to *T. sulcata* (e.g. Wells 1985; Yang 2007). It is abundant on mudflat under mangrove trees and occasionally on rocks.

Terebralia sulcata (Born, 1778)

This species is generally abundant and occurs sympatrically with *T. palustris* in Hong Kong mangroves. In addition, it is often found on the lower trunk of mangrove plants (usually below 0.5 m from the ground). A morphological comparison of the two species is presented in Table 5.

Table 5. Morphological comparison of the two species in the genus *Terebralia*.

	T. palustris	*T. sulcata*
Shell height	Usually about 3-4 cm in Hong Kong, although it can reach 19 cm in other regions (Houbrick 1991)	Up to 6 cm
Aperture	Moderately flared aperture; moderately thickened outer lip (Fig. 2); anterior canal not enclosed (Fig. 6)	Strongly flared aperture; strongly thickened outer lip (Fig. 2); anterior canal enclosed to form a tubular hole (Fig. 6)
Features of spire whorls	Four equal sized cords; broad axial ribs	Four to five cords (and sometimes six on body whorl); broad axial ribs
Ventrolateral varix	Prominent	Prominent
Shell colour	Usually brown to green, with yellow bands or spots	Usually brown to green, with yellow bands or spots; usually covered by a thin layer of mud in the field

Identification key

1a. Apex worn off as adults ..... 2 (*Cerithidea*)

1b. Apex not worn off as adults 4

2a. Five distinctive primary cords on each spire whorl; usually white, enlarged ventrolateral vari (Fig. 4) ..... ***Cerithidea moerchii***

2b. Cords on spire whorl usually weak or absent (Fig. 4) 3

3a. Aperture moderately thickened; 14-19 axial ribs on second last whorl; spiral ridge absent; ventrolateral varix usually absent ..... ***Cerithidea sinensis***

3b. Aperture weakly thickened; 11-25 axial ribs on second last whorl; five weak spiral ridges on whorl (usually eroded); ventrolateral varix strong (Fig. 5) ..... ***Cerithidea tonkiniana***

4a. Cords on spire whorl absent or nearly invisible (Fig. 2) ..... ***Cerithideopsis largillierti***

4b. Cords on spire whorl distinct 5

5a. Number of cords on spire whorl equals to or more than four ..... 6 (*Terebralia*)

5b. Number of cords on spire whorl equals to three ..... 7 (*Pirenella*)

6a. Aperture moderately flared; outer lip moderately thickened (Fig. 2); four cords on spire whorls; anterior canal not enclosed to form a tubular hole (Fig. 6) ..... ***Terebralia palustris***

6b. Aperture strongly flared; outer lip strongly thickened (Fig. 2); four to five cords on spire whorls; anterior canal enclosed to form a tubular hole (Fig. 6) ..... ***Terebralia sulcata***

Fig. 4. Comparison of the spire whorls of *C. tonkiniana* (left) and *C. moerchii* (right). Prominent, white ventrolateral varix indicated by the red arrow.

Fig. 5. Basal view of *C. tonkiniana* (left) and *C. sinensis* (right). Strong ventrolateral varix indicated by the red arrow.

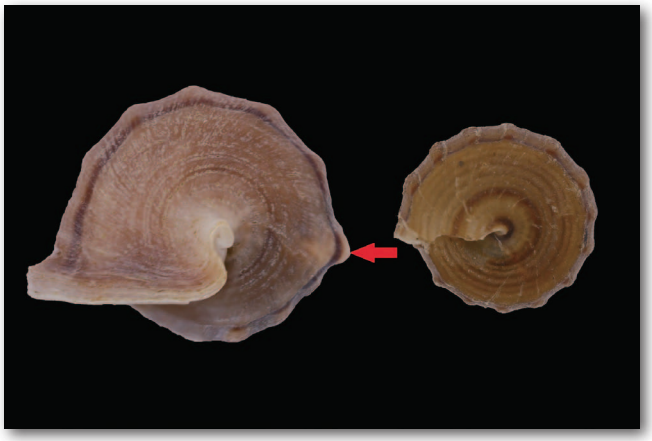


Fig. 6. Comparison of the anterior canals of *T. sulcata* (left) and *T. palustris* (right). Tubular hole indicated by the red arrow.

7a. Posterior canal slightly or strongly detached to form a 'wing' structure; basal projection of outer lip strong with acute angle which covers the anterior canal from basal view (Fig. 7) ..... 8 (*'P. alata'* group)

7b. Posterior canal not detached; basal projection of outer lip weak to moderate, more round, partially or not covering the anterior canal 10

8a. 3rd cord of spire whorls widest (Fig. 9); shell narrower; outer lip moderately thickened; aperture strongly detached posteriorly (Fig. 7) 9

8b. 1st cord of spire whorls widest (Fig. 8); shell wider; outer lip strongly thickened; aperture slightly detached posteriorly to form a round 'wing' (Fig. 8) ..... ***Pirenella nanhaiensis***

9a. 1st and 2nd grooves subequal (Fig. 9); posterior canal strongly detached to more than 50° from the axis to form a 'wing' ..... ***Pirenella alata***

9b. 1st groove twice as wide as 2nd groove (Fig. 9); posterior canal strongly detached to less than 50° from the axis to form a 'wing' ..... ***Pirenella microptera***

10a. Three to five strong spiral striae in the two spiral grooves on spire whorls (Fig. 10); cords equal or subequal ..... 11 (*'P. incisa'* group)

10b. Spiral striae in grooves weak or absent; 1st cord widest, 2nd cord narrowest (about half as wide as 1st cord) (Fig. 10) ..... ***Pirenella asiatica***

Fig. 7. Distinctive features of *'P. alata'* group (*P. microptera*): 'wing' (left) and strong basal projection of outer lip (right). Angles of 'wing' and basal projection indicated by red lines.

Fig. 8. Distinctive features of *P. nanhaiensis*: aperture (left) and spire whorl (right). Round 'wing' indicated by the red arrow.

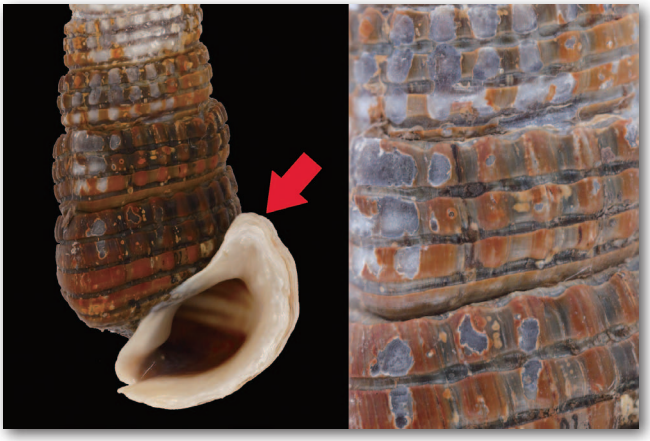
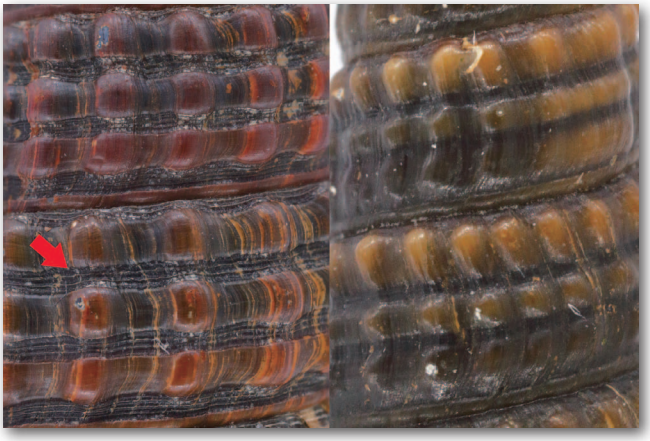


Fig. 9. Comparison of the spire whorl structures of *P. alata* (left) and *P. microptera* (right).

Fig. 10. Comparison of the spire whorl structures of *P. incisa* (left) and *P. asiatica* (right). Spiral striae in the grooves indicated by the red arrow.



11a. Moderate (about 90°) basal projection of outer lip covering the anterior canal at basal view (Fig. 11); anterior canal deep (Fig. 12); three equal cords; ventrolateral varix usually prominent (Fig. 11); strongly or moderately angled at base (Fig. 13) ..... ***Pirenella incisa***

11b. Weak (about 120°) basal projection of outer lip not covering the anterior canal at basal view (Fig. 11); anterior canal wide (Fig. 12); 1st cord slightly wider; ventrolateral varix weak (Fig. 11), round at base (Fig. 13) ..... ***Pirenella pupiformis***

Fig. 11. Basal view of *P. incisa* (left) and *P. pupiformis* (right). Angle of basal projection of outer lip indicated by the red lines.

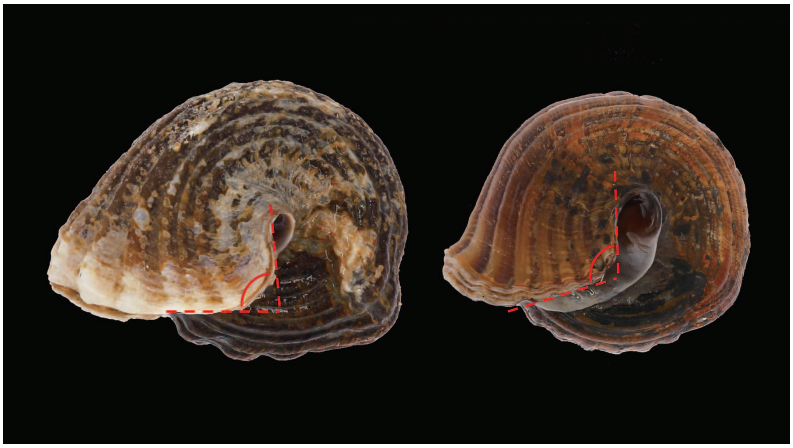
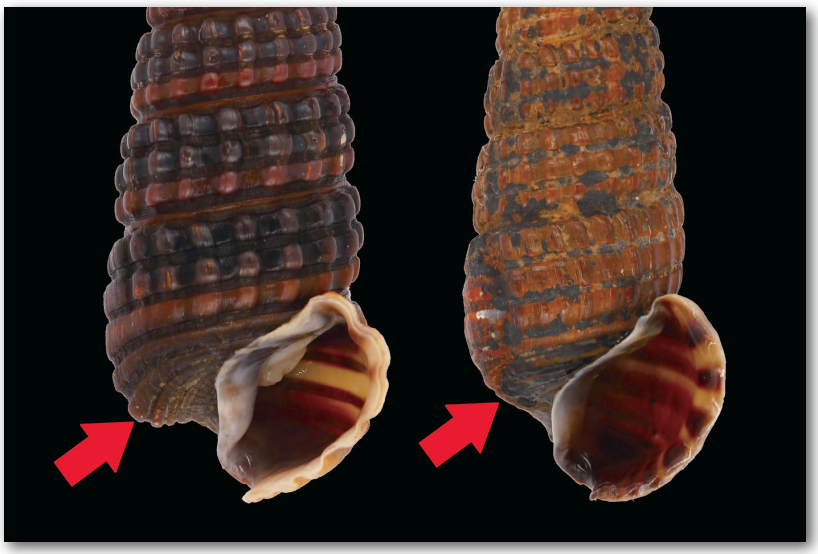


Fig. 12. Comparison of the anterior canals of *P. incisa* (left) and *P. pupiformis* (right).

Fig. 13. Comparison of the ventrolateral varix of *P. incisa* (left) and *P. pupiformis* (right). Ventrolateral varices indicated by the red arrows.



An updated species checklist of the family Potamididae in Hong Kong mangroves

Potamididae H. Adams & A. Adams, 1854

- *Cerithidea* Swainson, 1840
  - *Cerithidea tonkiniana* Mabille, 1887
  - *Cerithidea moerchii* (A. Adams, 1855)
  - *Cerithidea sinensis* (Philippi, 1848)
- *Cerithideopsis* Thiele, 1929
  - *Cerithideopsis largillierti* (Philippi, 1848)
- *Pirenella* Gray, 1847
  - *Pirenella alata* (Philippi, 1849) } *'P. alata'* group
  - *Pirenella microptera* (Kiener, 1841) } *'P. alata'* group
  - *Pirenella nanhaiensis* Fu & Reid, 2016 } *'P. alata'* group
  - *Pirenella incisa* (Hombron & Jacquinot, 1848) } *'P. incisa'* group
  - *Pirenella pupiformis* Ozawa & Reid, 2016 } *'P. incisa'* group
  - *Pirenella asiatica* Ozawa & Reid, 2016 — *'P. cingulata'* group
- *Terebralia* Swainson, 1840
  - *Terebralia palustris* (Linnaeus, 1767)
  - *Terebralia sulcata* (Born, 1778)

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Working Group Column

First Record of Dung Beetles *Onthophagus roubali* (羅氏嗡蜣螂), *Copris szechouanicus* (四川糞蜣螂) and *Microcopris propinquus* (近小糞蜣螂) in Hong Kong

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Beetle Working Group

漁農自然護理署甲蟲工作小組於 2014 至 2016 年進行糞金龜生態調查期間，發現在香港屬首次記錄的羅氏嗡蜣螂（*Onthophagus roubali*）、四川糞蜣螂（*Copris szechouanicus*）及近小糞蜣螂（*Microcopris propinquus*）。本文就上述糞金龜的主要鑒別特徵和分佈作出簡短的描述。

Introduction

In the dung beetle surveys conducted by the Beetle Working Group of the Agriculture, Fisheries and Conservation Department between 2014 and 2016, 3 species of dung beetles (Family Scarabaeidae; Subfamily Scarabaeinae), namely *Onthophagus roubali* (羅氏嗡蜣螂), *Copris szechouanicus* (四川糞蜣螂) and *Microcopris propinquus* (近小糞蜣螂), were recorded in Hong Kong for the first time. This article describes the key morphological features and distribution of these species.

Onthophagus (s. str.) *roubali* Balthasar, 1935 (羅氏嗡蜣螂)

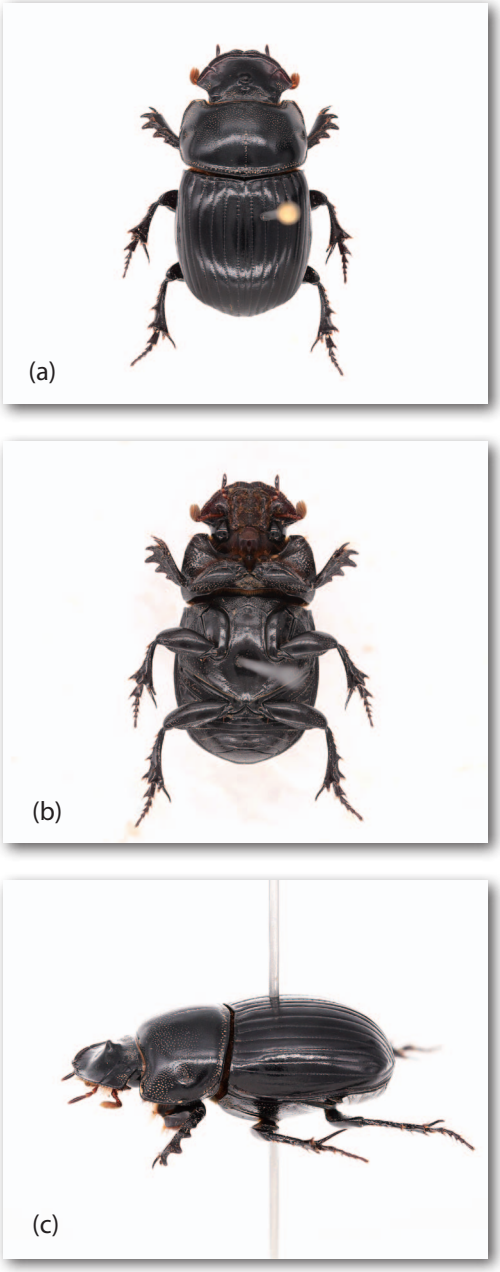
A specimen of *Onthophagus roubali* was collected from Ng Tung Chai in November 2014. It is dark brown and about 7.5 mm long. The body is elongated oval and rather convex with gently flattened posterior part. The head has a transverse carina (橫脊) but is without conspicuous prominence (角突). The pronotum (前胸背板) is sparsely and coarsely punctate and is ridged along the midline of the anterior part. Apart from Hong Kong, *O. roubali* was also recorded in Sichuan and Taiwan.

Fig. 14. *Onthophagus roubali* (a) dorsal view; (b) ventral view and (c) lateral view.

Copris (s. str.) *szechouanicus* Balthasar, 1958 (四川糞蜣螂)

Two specimens of *Copris szechouanicus* were collected from Wu Kau Tang in March 2015. The body of this species is black and about 15-17 mm in length. The clypeus (唇基) is wide and is weakly emarginated in the middle. The pronotum is densely and coarsely punctate. The elytra (鞘翅) has considerably large punctures and convex intervals between striae (刻點行). A strong prominence with a broad base is present on its head. Outside Hong Kong, *C. szechouanicus* was also found in Fujian, Guizhou, Hubei, Sichuan and Zhejiang.

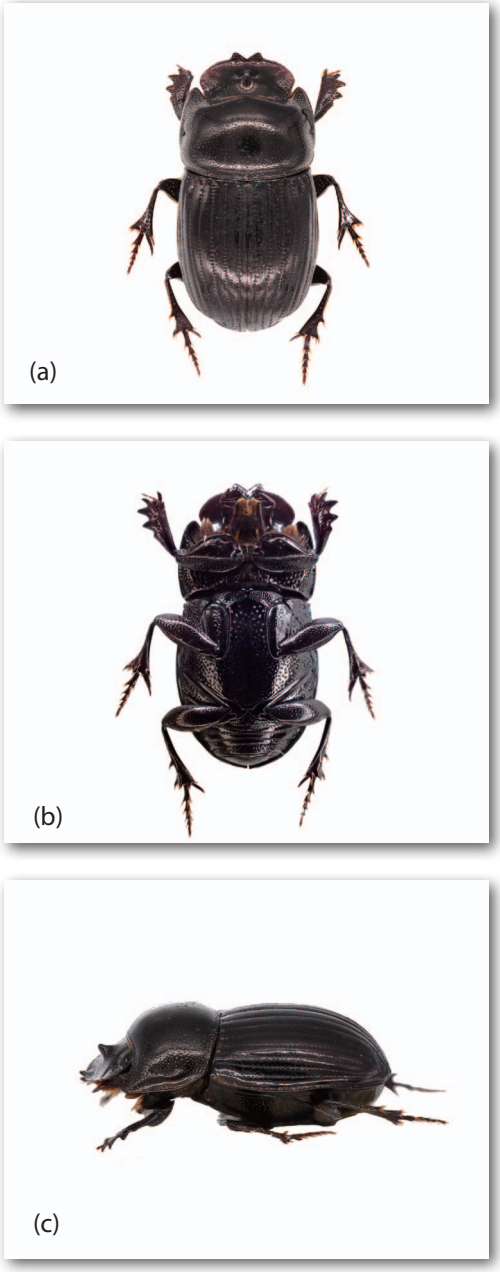
Fig. 15. *Copris szechouanicus* (a) dorsal view; (b) ventral view and (c) lateral view.



Microcopris propinquus (Felsche, 1910) (近小糞蜣螂)

Two specimens of *Microcopris propinquus* were collected from Sai Kung East Country Park in February 2016. This species is about 11 mm long and is black without metallic sheen. The 9th stria is absent on the elytra. The elytral apex has sparse fine punctures and the tip of protibial spur (前足脛節端距) is outwardly curved. The clypeal margin is widely incised in the middle with a subtriangular tooth on each side of the incision which differentiates it from *M. reflexus*. Apart from Hong Kong, *M. propinquus* was also recorded in Fujian, Sichuan, Taiwan, Yunnan, Zhejiang, and Laos.

Fig. 16. *Microcopris propinquus* (a) dorsal view; (b) ventral view and (c) lateral view



Erratum: Upon further study of the genitalia of the *Microcopris* species reported in Cheung et al. (2015) by the authors, the species should be *M. reflexus* instead of *M. apicepunctatus*. Hence, to date, there are two species of *Microcopris* (i.e. *M. reflexus* and *M. propinquus*) recorded in Hong Kong.

Acknowledgements

We would like to express our sincere gratitude to Prof. Yang Xing-ke (楊星科教授) and Dr. Bai Ming (白明博士) of the Chinese Academy of Sciences for their advice on the identification and distribution of the dung beetles reported in this article.

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First Record of Longhorn Beetles *Chloridolum jeanvoinei* (網點長綠天牛) and *Epepeotes luscus* (擬鹿天牛) in Hong Kong

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漁農自然護理署甲蟲工作小組於 2015 年進行生態調查期間，發現屬香港新記錄的網點長綠天牛 (*Chloridolum jeanvoinei*) 及擬鹿天牛 (*Epepeotes luscus*)。本文就以上兩種天牛的主要鑒別特徵作出簡短的描述。

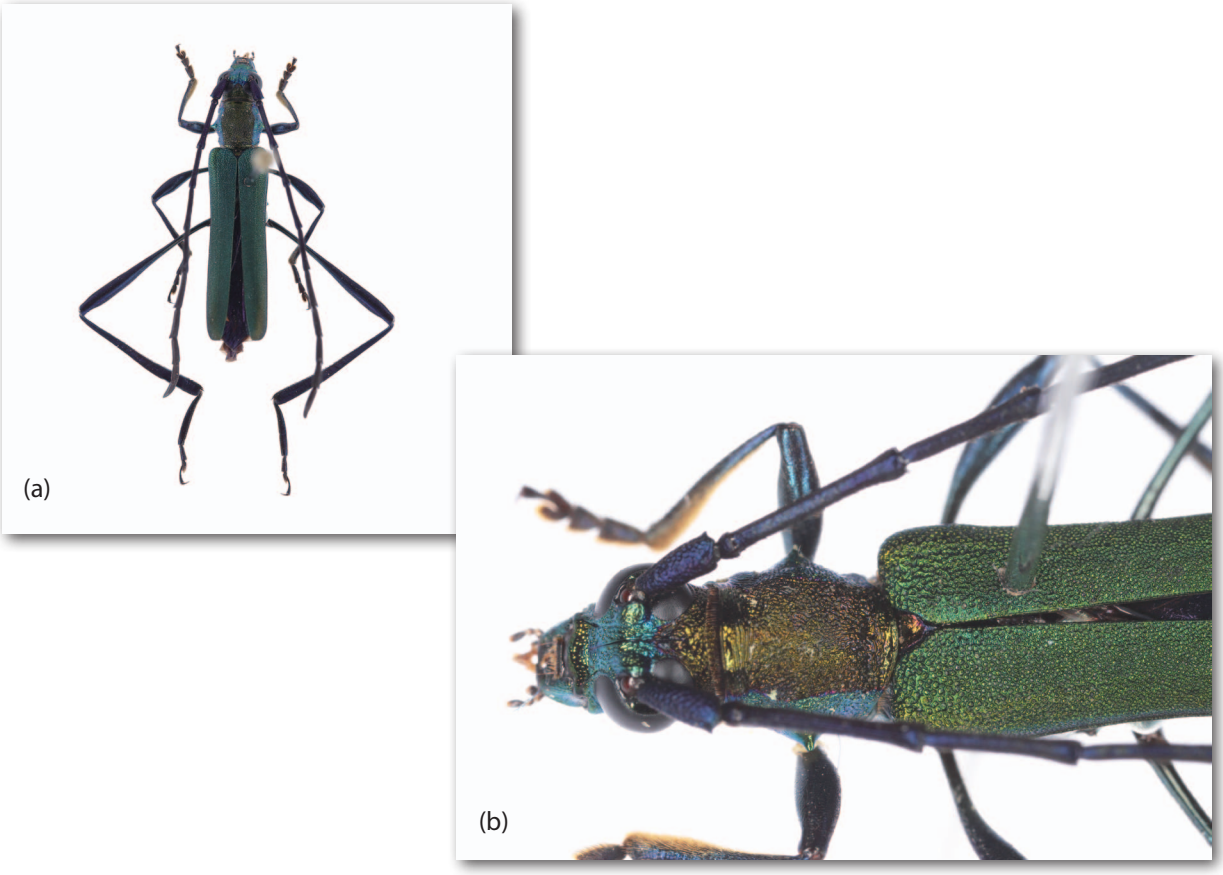
Introduction

In the ecological surveys conducted by the Beetle Working Group of the Agriculture, Fisheries and Conservation Department in 2015, two specimens of longhorn beetle (Family Cerambycidae) were collected and identified as the first record to Hong Kong. This article gives a brief description on the characteristics of these two species, *Chloridolum jeanvoinei* and *Epepeotes luscus*.

Chloridolum (Leontium) jeanvoinei (Pic, 1932) (網點長綠天牛)

A specimen of *Chloridolum jeanvoinei* was collected in Tai Tam Country Park in April 2015. It belongs to the subfamily Cerambycinae (天牛亞科). Its body length is 17 mm. It has metallic green elytra (鞘翅), bluish black scutellum (小盾片), and purplish blue antennae and legs. One of the key distinctive features of this species is the reticular punctate elytra. Outside Hong Kong, *C. jeanvoinei* is also found in Guangdong, Guangxi, Hainan, Laos and Vietnam.

Fig. 17. *Chloridolum jeanvoinei* (a) dorsal view; and (b) close-up of the reticular punctate elytra.



Epepeotes luscus (Fabricius, 1787) (擬鹿天牛)

A specimen of *Epepeotes luscus* was collected in Shing Mun Country Park in August 2015. It belongs to the subfamily Lamiinae (溝脛天牛亞科). It has black body clothed with short greyish yellow pubescence and its body length is 25 mm. This species is easily recognisable by the three orange longitudinal stripes on its head and pronotum (前胸背板) and the black mark on each elytron base. Apart from Hong Kong, *E. luscus* was also recorded in Jiangxi, Sichuan, Yunnan, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand and Vietnam.

Fig. 18. *Epepeotes luscus* (a) dorsal view; and (b) lateral view.

Acknowledgements

We would like to thank Dr. Joan Bentanachs (Spain), as well as Prof. Yang Xing-ke (楊星科教授) and Dr. Lin Mei-ying (林美英博士) of the Chinese Academy of Sciences, for their advice on the identification of the longhorn beetles reported in this article.

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Note on the Current Status of the Butterflies *Euthalia niepelti*, *Lethe chandica* and *Notocrypta paralysos*

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根據漁農自然護理署蝴蝶工作小組普查資料，綠裙邊翠蛺蝶 (*Euthalia niepelti*)、曲紋黛眼蝶 (*Lethe chandica*) 和窄紋袖弄蝶 (*Notocrypta paralysos*) 自首次發現至今已有穩定種群紀錄。因此，這三種蝴蝶會被列入香港蝴蝶名錄。

Euthalia niepelti and *Lethe chandica* (Nymphalidae) were first discovered in Hong Kong in 2011 (Barretto & Kendrick 2011; Chan et al. 2011) and *Notocrypta paralysos* (Hesperiidae) in 2014 (Hong Kong Lepidopterists' Society 2014). The former two species were regarded by AFCD as species that required further monitoring to confirm the establishment of local populations (Chan et al. 2011).

Following sightings and photographic records of these species from 2011 to 2017 at various localities in Hong Kong, it is believed that viable populations of these three species have been established locally. Therefore, they are added to the active checklist of Hong Kong butterflies, with a new total of 239 species.

The local restrictedness of these three species is determined from their frequency of occurrence in the surveyed 1-km grid squares (as in Chan et al. 2011) and their status is summarized in Table 1.

Table 1. Local restrictedness and known host plants of *Euthalia niepelti*, *Lethe chandica* and *Notocrypta paralysos*

Family	Nymphalidae	Nymphalidae	Hesperiidae
Sub-family	Nymphalinae	Satyrinae	Hesperiinae
Species Name	*Euthalia niepelti*	*Lethe chandica*	*Notocrypta paralysos*
Chinese Name	綠裙邊翠蛺蝶	曲紋黛眼蝶	窄紋袖弄蝶
Local Distribution	Fung Yuen, Ho Pui, Kuk Po, Lai Chi Wo, Luk Keng, Man Uk Pin, Ngau Ngak Shan, Ping Shan Chai, Sha Lo Tung, Shing Mun, So Lo Pun, Wu Kau Tang, Yung Shue Au	Chuen Lung, Fung Yuen, Hoi Ha, Hok Tau, Luk Keng, Mui Tsz Lam, Nam Chung, Ngau Ngak Shan, Pak Tam Chung, Ping Shan Chai, Sam A Tsuen, Shing Mun, Tai Lam, Tai Mo Shan, Tai Po Kau, To Kwa Peng, Wu Kau Tang, Yuen Tun Ha	Deep Water Bay Valley, Fung Yuen, Hong Kong Wetland Park, Mui Tsz Lam (Ma On Shan), Pak Tam Chung, Shek Mun Kap, Shing Mun, Shui Hau (Lantau Island), Tai Lam, Victoria Peak, Wong Mo Ying
Local Restrictedness	Rare (R)	Uncommon (UC)	Rare (R)
Known Native Host Plants[#]	*Schima superba*	*Bambusa ventricosa*	*Alpinia hainanensis*

[#] Further observations will be required to confirm other potential host plants.

Fig. 19. Male *Euthalia niepelti*

Fig. 20. Female *Lethe chandica*

Fig. 21. *Notocrypta paralysos*

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What's New

First Record of Pacific Swallow (*Hirundo tahitica* 洋斑燕) in Hong Kong

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漁農自然護理署職員於 2016 年 10 月 3 日在大生圍記錄到一隻洋斑燕 (*Hirundo tahitica*)，為香港的首次記錄。本文就洋斑燕的特徵及分布作簡短的介紹。

Introduction

During a biodiversity survey on 3 October 2016, four swallows were found flying over the fishponds at Tai Sang Wai near Fairview Park at 8:55 a.m. One of the swallows then perched on a power line three meters away from us. The individual was observed and photographed for more than five minutes.

Unlike Barn Swallow (*Hirundo rustica*), a common passage migrant and summer visitor to Hong Kong, this individual did not possess a dark blue breast-band. In addition, its lower abdomen was grey and its undertail coverts were black/ dark with pale fringes, suggesting that it was a Pacific Swallow (*Hirundo tahitica*).

Upon returning at 11:55 a.m., the group of four swallows was found perching on the same power line (Fig. 22), with only one Pacific Swallow and the other three swallows were Barn Swallows.

Identification

Pacific Swallow is a small to medium-sized swallow, with a body length of 13-14 cm. Its forehead and chest are chestnut red, crown and upperparts glossy steel-blue, wings and tail brownish-black and underparts grey. It has a slightly forked tail that lacks tail-streamers (Brazil 2009; del Hoyo & Collar 2017). The species largely resembles but can be distinguished from Barn Swallow by its smaller size, duskier and greyer underparts, the lack of a dark blue breast-band, shorter tail and the lack of tail-streamers.

The individual in question matches well with the above descriptions and is therefore identified as Pacific Swallow.

Distribution and habitat

Pacific Swallow is common in south India, southeast Asia, South China Sea Islands, Taiwan, the Ryukyu Islands, the Philippines, New Guinea to Pacific Islands. Unlike its migratory relatives, Pacific Swallow is mainly a resident species though there have been reports of post-breeding movement to lower altitudes in India and Sri Lanka, and between islands in Ryukyu where it joins flocks of other swallows (del Hoyo & Collar 2017). It prefers coastal areas, open grounds, forested hills, as well as suburban (even urban in Taiwan) to rural areas, from 0 to 2400m above sea level. It is often found close to water bodies (Brazil 2009; del Hoyo & Collar 2017).

Fig. 22. Pacific Swallow *Hirundo tahitica* at Tai Sang Wai on 3rd October 2016.

Fig. 23. Pacific Swallow *Hirundo tahitica* (middle) and Barn Swallows *Hirundo rustica* (left and right).

Acknowledgements

The authors would like to thank the Records Committee of Hong Kong Bird Watching Society for assessing this record and Ms. Ivy W.Y. So of the Wetland and Fauna Conservation Division for reviewing this article.

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(Note: In line with the International Ornithologists' Union, this article considers *H. javanica* a subspecies of *H. tahitica*.)

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